

REMARKS

Claims 9–22 are pending in the above-identified application. Applicant have canceled claims 9–15, 17, 19, and 21, without prejudice. Applicant reserve the right to preserve those claims in a later-filed application. Applicant have also amended claim 16 in this application.

Drawings

The drawings have been amended as suggested by the Examiner to identify Figures 1–3 as “Prior Art.” Replacement sheets as required by 37 C.F.R. § 1.84(c) are being filed with this response.

Specification

The title of the application has been amended as suggested by the Examiner. The specification has been amended to comply with proper idiomatic English. In addition, the appropriate form of the term “irradiate” has been substituted for each occurrence of any form of the term “radiograph.”

The abstract has been amended to comply with proper idiomatic English. In addition, the term “irradiated” has been substituted in place of the term “radiographed.”

Arrangement of the Specification

Applicant has considered and respectfully declines Examiner’s suggestion to include a subject heading for each section described in 37 C.F.R. 1.77(b). The requirement in 37 C.F.R. 1.77(c) is that “[t]he text of the specification sections defined in paragraphs (b)(1) through (b)(12) of this section, **if applicable**, should be preceded by a section heading . . .” (emphasis added). The cited rule does not require section headings to appear for sections that are inapplicable to this application; nor is there any requirement in the Rules that unused section headings be labeled with the phrase “Not Applicable,” as the Examiner has suggested. As such,

Applicant respectfully declines the Examiner's suggestion to insert additional section headings followed by the phrase "Not Applicable" for inapplicable sections.

Claim Objections

The Examiner objected to Applicant's use of the term "radiograph" in Claim 16. This term has been replaced in claim 16 and in the specification and abstract by the word "irradiate," as suggested by the Examiner.

Claim Rejections Under 35 U.S.C. § 103

Claims 9, 11, 13, 15, 16, 18, and 22

The Examiner has rejected claims 9, 11, 13, 15, 16, 18, 20, and 22 under 35 U.S.C. 103(a) as being unpatentable over U.S. Published Patent Application No. 2003/0223073 A1 ("Van Wiggeren et al.") in view of U.S. Patent No. 6,856,400 ("Froggatt").

Claim 16 has been amended to include the subject matter of claim 17. Claims 9, 11, 13, and 15 have been canceled. Claims 18, 20, and 22 now depend from claim 16, which includes the limitations of claim 17.

Applicant respectfully traverses the Examiner's rejection of claim 16 under 35 U.S.C. 103(a). The Examiner admits at page 6, first full paragraph that Van Wiggeren et al. does not disclose measuring wavelength-dependent power changes. According to the Examiner, Froggatt provides for that feature. However, Applicant believes that a combination of Van Wiggeren et al. and Froggatt would not lead to that feature. In particular, Van Wiggeren et al. teaches away from measuring wavelength-dependent power changes.

In figure 2 of Van Wiggeren et al., step 210 relates to a selection of the strongest interference signals from among photodetectors 171, 172, and 173. All of the following steps are based on that selection (see arrows). Since a single interference is used out of three interference

signals, the wavelength-dependency does not play any role. Van Wiggeren et al. would be able to measure wavelength-dependent power changes, but does not do so, as can be seen from that selection.

Froggatt, who teaches to measure wavelength-dependent power changes, would not lead Van Wiggeren et al. to take another approach to signal selection. The reason is that polarization mode dispersion—which leads to extinction of signals—can occur in both the reference arm and in the measurement arm of the interferometer apparatus. Van Wiggeren et al. teach to choose the strongest remaining signal. Van Wiggeren et al. does not teach to investigate the reason for the signal extinction, which might be the power-dependency of the polarization mode dispersion.

Moreover, neither Van Wiggeren et al. or Froggatt teach the step of claim 16 of determining the chromatic dispersion of the sample both on the basis of the power changes and on the basis of the polarization changes. It is a novel part of the invention to determine the chromatic dispersion both on the basis of the power changes and on the basis of the polarization changes. Froggatt attempts to completely characterize an optical device (see column 1, lines 29–32; column 2, lines 3–7; and column 2, lines 58–61 of Froggatt as cited by the Examiner). However, Froggatt does not use this characterization to determine the chromatic dispersion of the values obtained.

Therefore, claim 16 and claims 18, 20, and 22, which depend from claim 16, are allowable.

Claims 10, 12, 14, 17, 19, and 21

The Examiner has rejected claims 10, 12, 14, 17, 19, and 21 under 35 U.S.C. 103(a) as being unpatentable over Van Wiggeren et al. in view of Froggatt, and further in view of admitted prior art.

Claim 16 has been amended to include the subject matter of claim 17. Claims 10, 12, 14, 17, 19, and 21 have been canceled. Claims 18, 20, and 22 now depend from claim 16, which now includes the limitations of claim 17.

Applicant respectfully traverses the Examiner's rejection of claim 17 under 35 U.S.C. 103(a). The Examiner combined admitted prior art with Van Wiggeren et al. and Froggatt in her rejection claim 17, the subject matter of which has been incorporated into amended claim 16. Applicant respectfully disagrees with the Examiner's characterization of the admitted prior art.

What the admitted prior art discloses is the provision of a polarization beam splitter PBS (see figure 3 of the present application, beam splitter indicated at 20). The polarization beam splitter includes two optical detectors. There is no polarimeter. The language of claim 17 indicates that two orthogonal states of polarization for determining the power changes are selected **using said polarimeter**. According to claim 17, the selection is to be made in such a manner that **power from the reference arm interferometer apparatus is broken down into virtual partial powers of approximately the same magnitude**. In other words, there is not real splitting of the beam in the reference arm. Rather, the two orthogonal states of polarization selected **at a later stage** behind the reference arm are selected in such a manner that the result is essentially the same as **if a virtual splitting in the reference arm had taken place**. That feature is explicitly described from page 5, line 23 to page 6, line 13 of the present application.

Applicant specifically points out on page 6, lines 6–8 of the present application that the measurement data gained by the polarimeter can easily be recalculated as measurement data that a **virtual** polarization beam splitter with the ideal power distribution would provide.

The present invention goes beyond the prior art admitted in Figure 3 of the present application because while Figure 3 relates to a real beam splitting, the present invention relates to a virtual beam splitting.

Therefore, the subject matter of claim 17, now incorporated in amended claim 16, is allowable. Claims 18, 20, and 22, which depend from claim 16, are also allowable.

Conclusion

Because, as discussed above, no single prior art reference or combination thereof teaches the proper features of amended claim 16, and because claims 18, 20, and 22 depend from claim 16, the prior art cannot render these remaining four claims unpatentable.

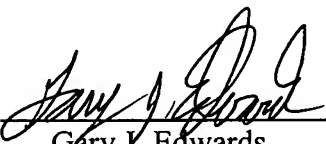
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Gary J. Edwards
Reg. No. 41,008

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER L.L.P.
901 New York Avenue, N.W.
Washington, D.C. 20001-4413
(650) 849-6622

Attachments: Replacement Sheets (Figs. 1-3)
Annotated Sheets showing changes

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AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings include the legend “Prior Art” in Figures 1, 2, and 3.

Attachments: Replacement Sheets (Figs. 1-3)
 Annotated Sheets showing changes

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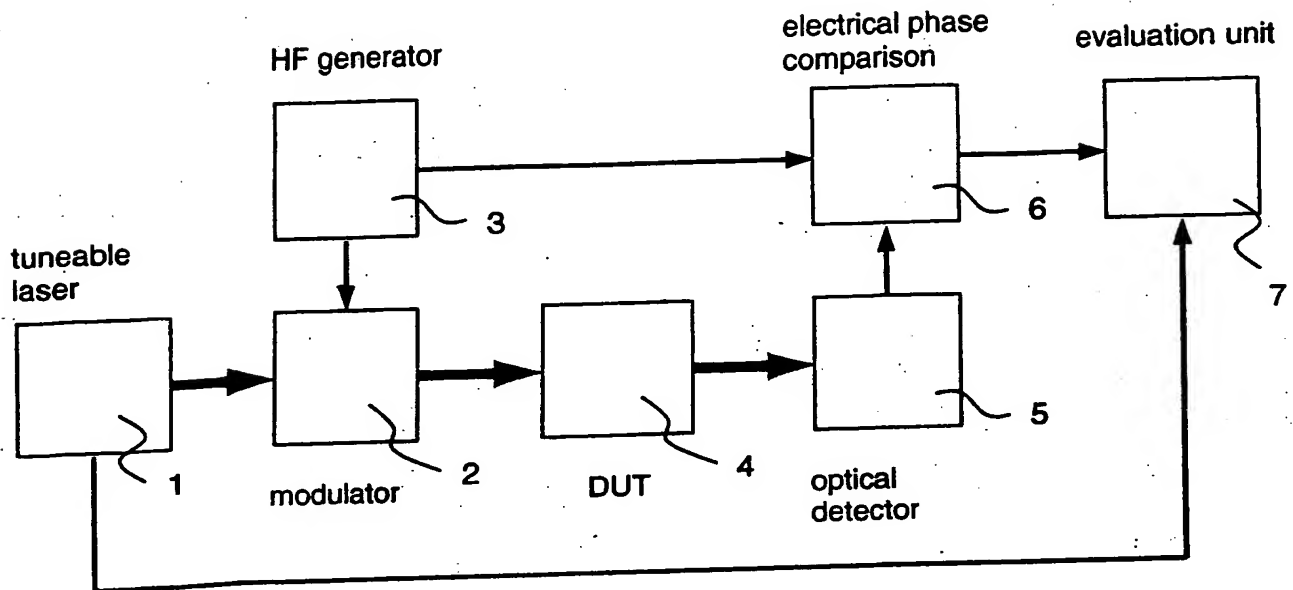


Fig. 1

(Prior Art)

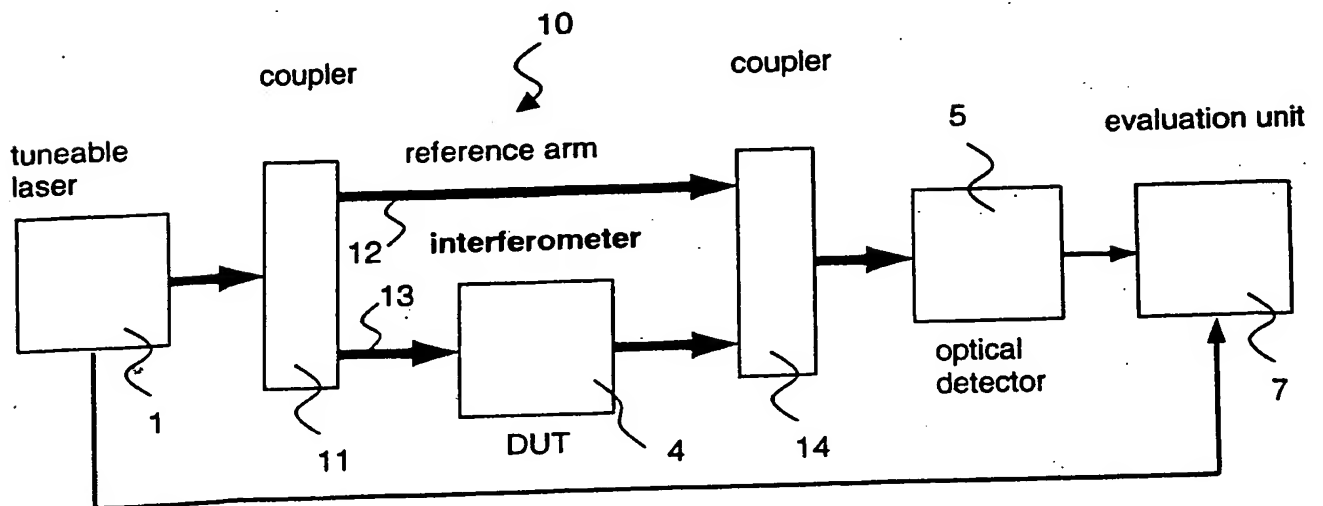


Fig. 2

(Prior Art)

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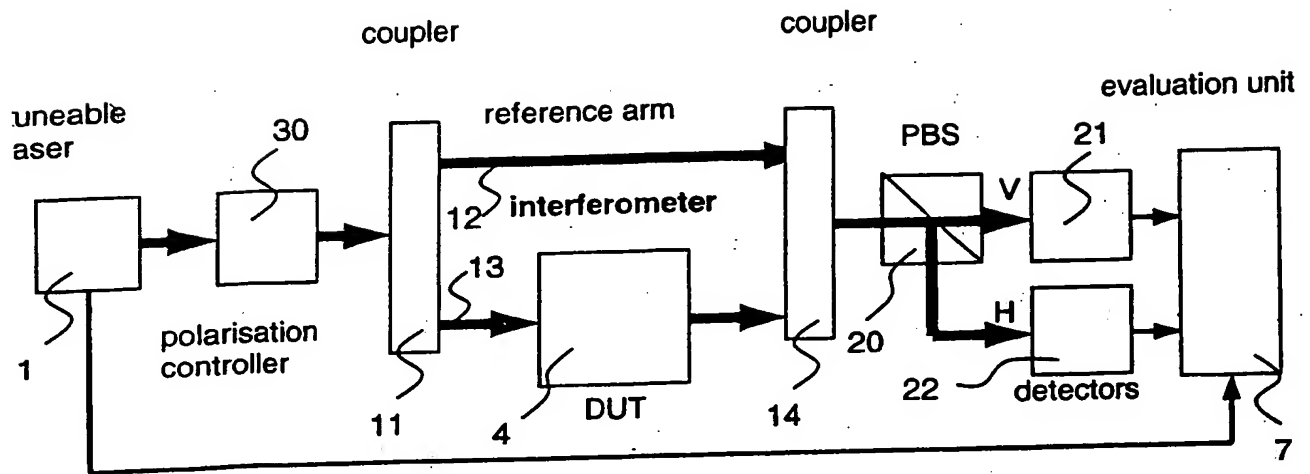


Fig. 3

(Prior Art)

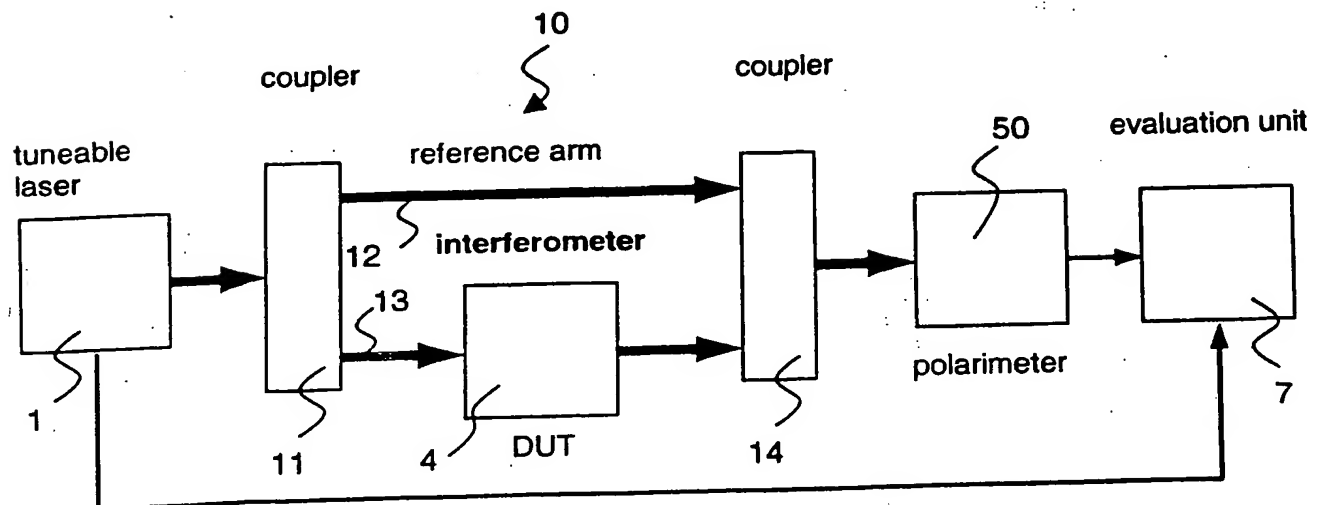


Fig. 4